REMARKS

Applicant submits this Amendment and Response in reply to the Final Office Action dated December 23, 2008 and Advisory Action dated April 13, 2009. Applicant submits that this Amendment and Response is fully responsive to the Office Action for at least the reasons set forth herein.

By the present amendment, claim 1 is amended. Notably, the phrase "quasi-regular" has been deleted. No new matter has been added to the application by way of the aforementioned amendments.

In the Final Office Action, claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Pub. 2004/0085891 to Henriksson ("Henriksson") in view of U.S. Patent No. 3,876,945 issued to Gossel ("Gossel"). Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Henriksson, Gossel in further view of Daspit et al., U.S. Patent No. 3,754,101 ("Daspit").

Applicant submits that the claims are patentable over the cited references, whether taken alone or in any proper combination thereof.

Specifically, Applicant submits that the references fail to teach digitally processing a signal in a frequency domain **containing regular elements of unwanted signal**. Notably, the Henriksson teaches processing signals with unwanted impulse noise. An impulse noise is a random short pulse or burst of noise.

Henriksson specifically states that "[a]n object of the invention is to provide a method and arrangement for reducing the effect of **impulse interference** in a received multi-carrier signal that is transferred over a data link." *See* Paragraph 0009. The

method comprises the step of detecting a presence of **at least one impulse interference** within the signal.

The reference describes that the impulse interference can be caused by:

> by ignition sparks from vehicles or various household appliances like hair-dryers, vacuum cleaners, drilling machines etc. The cheapest models of these appliances often have insufficient interference suppression. Also, for the same reason, a single pulse, or even a burst of pulses, is produced when switching on or off any device connected to the power line. These could be electrical heating devices, thyristor dimmers, fluorescent lamps, refrigerators etc.

See Paragraph 0005.

In contrast, the claimed invention is directed to processing ***regular*** interference where the unwanted elements are periodic and are a repeating signal. The claimed invention determines the repetition intervals between the regular interference and uses this information to cancel the interference. Applicant submits that impulse burst interference is not a regular interference.

Furthermore, the process or suppression used to cancel interference caused by an impulse burst is not the same as processing or suppression used to cancel a regular or periodic interference containing unwanted signals. Notably, an impulse burst having a short interference time does not contain any useful repetition information that would assist in cancelling the burst of noise. In fact, Henriksson does not determine any repetition of the interference or use this determination to cancel interference.

Applicant further submits that Henriksson fails to teach or suggest generating a time domain window function using said established timing characteristics, said time

domain window function being **a sinusoidal function having a zero crossing substantially coinciding with the position of each unwanted signal element.**

Notably, in the Advisory Action the Examiner asserts that this feature is obvious in view of Henriksson because the reference teaches using a cosine as a portion of the blanking window. Further, the Examiner asserts that a cosine is an obvious variant of a sine function. Applicant respectfully disagrees. The claimed invention is not simply an inverse of the prior art.

Notably, the claimed sinusoidal function is adapted to have a zero crossing substantially coinciding with the repetitive positions of the regular interference. Since Henriksson cancels signal interference for short impulse bursts, there is no suggestion to use the zero crossing of the cosine function to coincide with each regular or periodic interference.

In contrast to the claimed invention, using a cosine function as the blanking window is used solely to smooth out the edges of the blanking function. A person of ordinary skill in the art would not select a different function that is used for an entirely different purpose, i.e., smoothing edge, to arrive at the claimed invention. The claimed invention is not simply a phase shift of a cosine function, but rather a novel solution for an unsolved problem. In fact, the Henriksson cosine function would have a maximum value where the instant invention has a minimum value, effectively teaching away from the claimed invention. Notably, the zero crossing of the cosine function would not substantially coincide with the position of each repetitive unwanted signal element. For

example, Fig. 7A clearly illustrates that the zero crossing does not substantially coincide with the position of the unwanted signal element.

In fact, Fig. 700 only depicts the cosine function at the ends of the blanking window and the zero crossing appears to be located at the very end of the window. At best, this is a teaching that the zero crossing is only tangentially located near the unwanted signal element or blanking window. In fact, most of the blanking window is linear, e.g., middle portion.

Nevertheless, the Examiner asserts that the claimed feature is obvious in view of Henriksson in view of Gossel. Specifically, the Examiner avers that zeroing out burst interference using a zero crossing is well known in the art as evidenced by Gossel. Gossel purportedly teaches suppressing burst-type interference using zero-crossing intervals. The Examiner avers that Gossel teaches that "if the bursts are shorter than each zero-crossing interval the burst/interference is suppressed". The Examiner apparently uses this teaching to arrive at the conclusion that "therefore, Gossel teaches a sinusoidal function having a zero crossing substantially coinciding with the position of each unwanted signal".

Applicant respectfully disagrees. Applicant cannot follow the logic used to arrive at the conclusion.

Notably, Gossel teaches a means for interference suppression. Specifically, Gossel teaches evaluating the **zero crossing of the received signal or the interval between the zero crossings.** In order to prevent or reduce interference which occurs between the zero crossings, the receiver is blocked for a given period after each zero

crossing. *See* Abstract. In contrast, the claimed invention aligns the zero crossing of the **time domain window function** with the position of each unwanted signal element. The zero crossing substantially coincides with the unwanted signal element. The reference is referring to a different zero crossing, i.e., received signal verses time domain window function.

Furthermore, even if Gossel was teaching the same zero crossing, Applicant submits that the zero crossing does not "substantially coincide with the unwanted signal elements". Rather, the zero crossing triggers the blocking. In other words, the zero crossing is tangentially located near the unwanted signal element, e.g., at the edge of the blocking window. Thus, the zero crossing is not located to substantially **coincide with the position of each unwanted signal element, as claimed.** For example, the instant specification describes that the zero crossing is arranged to coincide with the mid-points of the interference bursts. At best, the reference teaches that the zero crossing coincides with the edge of the blanking window. However, this does not teach that the zero crossing substantially coincides with the position of **each unwanted signal element**.

Moreover, Gossel fails to teach suppressing signal interference caused by regular or periodic elements of unwanted signal. Notably, Gossel states that adverse effects of instances of short transmission interruptions can be eliminated. *See* Abstract. In fact, as illustrated in Fig. 1 (of Gossel), the "blocking time" is not "regular", but varies between successive zero crossings. Therefore, one of ordinary skill in the art would not use a periodic sinusoidal function to suppress the signal interference.

Furthermore, in Gossel the properties of the interference burst or impulse burst is irrelevant. Gossel does not evaluate or examine the interference pattern to establish any timing characteristic of the interference, but only examines the received signal for the zero crossing interval.

Therefore, Gossel does not teach using the zero crossing of the time domain window function to suppress regular unwanted signal elements, but rather teaches using the zero crossing of the received signal to trigger a blocking window for a time period.

Applicant further fails to see the connection between "if the bursts are shorter than each zero-crossing interval, the burst/interference is suppressed" and the claimed feature of a sinusoidal function having a zero crossing substantially coinciding with the position of each unwanted signal element.

Accordingly, one of ordinary skill in the art would not combine Henriksson and Gossel to arrive at the claimed invention which uses a time domain window function using said established timing characteristics, said time domain window function being a sinusoidal function having a zero crossing substantially coinciding with the position of each unwanted signal element.

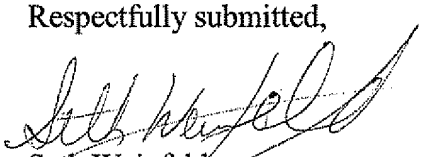
Therefore, Applicant submits that the cited combination, whether taken alone or in any proper combination thereof, fails to teach or suggest all of the limitations of claim 1.

Therefore, for at least the reasons provided above, Applicant submits that claim 1 is allowable over the cited prior art references. In addition, claim 3 depends from independent claim 1 and thus includes all the limitations recited therein by that

independent claim. Consequently, Applicant submits that claim 3 is allowable for at least the same reasons. Daspit fails to cure all of the above-identified deficiencies.

In conclusion, Applicant believes that the above-identified application is in condition for allowance and henceforth respectfully solicits the Examiner to allow the application. If the Examiner believes a telephone conference might expedite the allowance of this application, the Applicant respectfully requests that the Examiner call the undersigned, Applicant's attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,



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